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#include <stdio.h>

struct node
{
    unsigned dist[20];
    unsigned from[20];
} rt[10];

int main()
{
    int costmat[20][20];
    int nodes, i, j, k, count = 0;
    printf("\n Enter the number of nodes : ");
    scanf("%d", &nodes);
    printf("\n Enter 999 for infinity");
    printf("\n Enter the cost matrix :\n");
    for (i = 0; i < nodes; i++)
    {
        for (j = 0; j < nodes; j++)
        {
            scanf("%d", &costmat[i][j]);
            costmat[i][i] = 0;
            rt[i].dist[j] = costmat[i][j];
            rt[i].from[j] = j;
        }
    }
    do {
        count = 0;
        for (i = 0; i < nodes; i++)
            for (j = 0; j < nodes; j++) for (k = 0; k < nodes; k++) if
(rt[i].dist[j] > costmat[i][k] + rt[k].dist[j])
            {
                rt[i].dist[j] = rt[i].dist[k] + rt[k].dist[j];
                rt[i].from[j] = k;
                count++;
            }
    } while (count != 0);
    for (i = 0; i < nodes; i++)
    {
        printf("\n\n For router %d\n", i + 1);
        for (j = 0; j < nodes; j++)
        {
            printf("\t\nnode %d via %d Distance %d ", j + 1, rt[i].from[j] + 1,
rt[i].dist[j]);
        }
    }
    printf("\n\n");
}

```